NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATIONS

WINDBREAK/SHELTERBELT RENOVATION

1. Scope

The work consists of replacing, releasing, and/or removing selected trees and shrubs or rows within an existing windbreak or shelterbelt, adding tree/shrub rows, or removing selected tree/shrub branches. This specification (including references made within to Conservation Practice Standards and Specifications and Technical Notes) and the Kansas Tree/Shrub Planting Field Sheet (Form KS-ECS-5) shall be used to design the practice. Practice application will be documented on the Kansas Tree/Shrub Planting Field Sheet (Form KS-ECS-5) and narrative statements in the conservation plan.

2. Renovation Practices

Underplanting.

- Plant eastern redcedar or Rocky Mountain juniper [1/] approximately midway between the rows of the existing windbreak where any one of the following conditions exists:

  Where trees and shrubs in 2 or more adjacent rows are scattered and a majority are dead or are in poor condition.

  Where the windward rows are inadequate for significantly reducing low-level winds or controlling drifting snow.

  Where the leeward rows need to be improved for wildlife purposes.

- For establishment recommendations see Kansas Forestry Technical Note No. 9.
- The within-row spacing should be 6 to 8 feet.
- Where natural regeneration of eastern redcedar is present, thinning as described below may be needed. Where natural regeneration is spotty, new plantings should be used to supplement regeneration.

Supplemental or enlargement plantings.

- Cultivated plantings will be made in accordance with Conservation Practice Standard 380, Windbreak/Shelterbelt Establishment.
- Supplemental or enlargement plantings will not be made closer than 30 feet from large spreading trees such as Siberian elm, eastern cottonwood, honeylocust, or a spreading, suckering-type shrub.
- Supplemental or enlargement plantings with small and medium-sized trees or shrubs except eastern redcedar and Rocky Mountain juniper [1/] will not be closer than 20 feet from adjacent rows of shrubs or small and medium-sized trees.
- Supplemental or enlargement plantings with eastern redcedar and Rocky Mountain juniper [1/] will not be closer than 15 feet from the existing windbreak.
- Eastern redcedar or Rocky Mountain juniper [1/] are the preferred species for use in supplemental plantings on the north and west sides of existing windbreaks where soils are suitable. New plantings on the south and east sides of existing windbreaks can be of any adapted tree or shrub (See Kansas Field Office Technical Guide, Section II, Windbreak Interpretations).
- Root plowing can be used to prevent competition.

- Scalp plantings will be made in accordance with Kansas Forestry Technical Note No. 9 and Conservation Practice Standard 380, Windbreak/Shelterbelt Establishment, with the following exceptions (assuming original belt was scalp-planted and contains all conifers):

  Plantings will not be made closer than 15 feet from existing plantings if eastern redcedar or Rocky Mountain juniper [1/] is used. Eastern redcedar or Rocky Mountain juniper [1/] are the preferred species for use in supplemental plantings on the north or west of existing windbreaks where soil permits.

  Plantings will not be made closer than 20 feet from existing plantings if a pine species is used.

Removal and replacement of dead and dying rows.

- Designate the perimeter of the area to be cleared or killed by marking paint or flagging.
- All trees, shrubs, or other debris from a cleared area which interfere with cultivation operations or planting will be removed from the site or disposed of within the site (such as creating brush piles for wildlife) prior to planting.
- Prepare a site by acceptable methods according to Kansas Forestry Technical Note No. 9.
- Conifers are best suited for planting in this type of windbreak renovation; however, any tree or shrub species suited to the soil (See Kansas FOTG, Section II, Windbreak Interpretations).
- Where only a portion of the interior of a windbreak is removed, replant the area with one row less than the number of rows removed.
- If the debris is to be burned, it must be piled far enough away from the planting to prevent damage to the trees. All burning must comply with local burning regulations.
- The removal of trees by severing at the base may cause sprouting. To control sprouting where it is not wanted, apply an appropriate herbicide. [2/]

Release of sod-bound trees.

- This is applicable where at least 70 percent stand exists and where heavy sod has curtailed growth.
- If possible, plow shallow or cultivate no deeper than 3 inches between the rows. Do not plow or cultivate closer than one foot from the base of the trees. The optimum time is midsummer or early fall. It is also permissible to use appropriate herbicides to control grasses, if they are applied according to label information. [2/]

Thinning.

- Thinning can be the removal or killing of certain trees within the row or removal or killing of entire rows to improve the growth of adjacent rows.
- Trees and/or shrubs may be thinned within the row not to exceed the current recommended maximums for in-the-row spacing by more than 30 percent.
- Marking of trees and shrubs or entire rows to be removed must be done prior to any removal operations.
- Removal may be by any means that does not contribute to erosion or that does not damage trees and/or shrubs that will remain. It may be desirable to use the debris for wildlife brush piles. Disposal must be in compliance with county and state regulations.
- An effort will be made to retain those trees, shrubs, or rows that have the most vigor. Removing or killing entire rows of broadleaf trees can improve the growth of adjacent rows of evergreens which have been suppressed. Broadleaf rows to favor when overtopping or crowding occurs are common hackberry, green ash, honeylocust, bur oak, and black walnut.

- The removal of trees by severing at the base may cause sprouting. To control sprouting where it is not wanted, apply an appropriate herbicide. [2/]

Corrective pruning of deciduous trees and shrubs.

- Prune branches from adjacent deciduous trees which may interfere with the normal growth of evergreen species. Make cuts close to trunk or branch being left.
- Prune deciduous shrub rows which have become leggy (containing sparse or dead branches) and where a more dense shrub row is desirable. Cut shrubs back to 4 to 8 inches above ground during the dormant season.

Root pruning.

- Root pruning may be needed to prevent crop yield reduction adjacent to the windbreak. Root pruning may be used to prevent competition from adjacent trees when supplemental or enlargement plantings are made.
- Root plow at the drip line or further from the trees. Cultivation over the root plow furrow is necessary to prevent suckering from the severed roots.
- Root plow to a depth of 18 to 24 inches. This will normally require two trips over the furrow, plowing 9 to 12 inches with each pass.
- Repeat root pruning at intervals of 5 to 10 years.
- Root prune when the trees are dormant if possible.
- Locate all buried utilities before starting root pruning.

Fabric weed barrier for weed control and moisture conservation.

- Refer to Kansas Forestry Technical Note No. 9.

[1/] Except as limited by law in commercial apple area (both eastern redcedar and Rocky Mountain juniper are hosts of cedar-apple rust). Rocky Mountain juniper is not recommended in MLRAs 75, 76, 84A, 106, 107, and 112.

[2/] CAUTION: If pesticides are used, they should be applied only when needed and handled with care. Follow the directions and heed all precautions on the container label. If pesticides are not handled or applied properly, they may be injurious to humans, animals, fish and wildlife, desirable plants, honey bees and other pollinating insects, and they may contaminate water supplies. Apply only in accordance with federal, state, and/or local laws.